

Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An apparatus for processing a sample using sonic energy, the apparatus comprising:
a sonic energy source for emitting sonic energy wherein the energy source generates a wavetrain substantially converging in a focal zone having a diameter less than about 2 cm;
a medium for coupling the wavetrain to the sample;
a holder reaction vessel for holding the sample and preventing the sample from contacting the medium, the sample the reaction vessel disposed in a predetermined location movable relative to the sonic energy source emitted sonic energy;
a processor for controlling at least one of the sonic energy source and the location of the sample vessel relative to the focal zone according to a predetermined methodology, such that the sample is selectively exposed to sonic energy to produce a desired result.
2. (Original) The apparatus of claim 1 further comprising a feedback system connected to the processor for monitoring at least one condition to which the sample is subjected during processing, such that the processor controls at least one of the sonic energy source and the location of the sample in response to the at least one condition.
3. (Cancelled)
4. (Original) The apparatus of claim 1 further comprising a temperature control unit for controlling temperature of the sample.
5. (Original) The apparatus of claim 4 wherein the processor controls the temperature control unit.

6. (Previously presented) The apparatus of claim 1 further comprising a pressure control unit for controlling pressure to which the sample is exposed.

7. (Previously presented) The apparatus of claim 6 wherein the processor controls the pressure control unit.

8-16. (Cancelled)

17. (Currently amended) The apparatus of claim 4816 wherein the device for moving the sample comprises a stepper motor.

18. (Original) The apparatus of claim 2 wherein the feedback system comprises a sensor for monitoring the at least one condition.

19-22. (Cancelled)

23. (Original) The apparatus of claim 1 wherein the sonic energy source generates sonic energy at least two different frequencies.

24. (Cancelled)

25. (Original) The apparatus of claim 1 wherein the wavetrain comprises a first wave and a different second wave.

26. (Original) The apparatus of claim 1 wherein the wavetrain comprises about 1000 cycles per burst at about a 10% duty cycle at about 15 MPa.

27. (Currently amended) A method for processing a sample ~~with~~ using sonic energy, the method comprising the steps of:

generating a sonic energy wavetrain substantially converging in a focal zone having a diameter of less than about 2 cm;

exposing the sample to the sonic energy wavetrain through a medium while preventing the sample from contacting the medium; and

~~exposing the sample to sonic energy wherein the sonic energy comprises a wavetrain; and controlling at least one of the sonic energy and a location of the sample relative to the sonic energy relative to the focal zone according to a predetermined methodology, such that the sample is selectively exposed to sonic energy to produce a desired result.~~

28. (Previously presented) The method of claim 27 comprising the steps of sensing at least one condition to which the sample is subjected during processing and altering at least one of the sonic energy and the location of the sample in response to the at least one condition.

29. (Previously presented) The method of claim 28 wherein during the sensing step, the at least one condition is a mechanical occurrence.

30. (Previously presented) The method of claim 28 wherein during the altering step, the intensity of the sonic energy is altered.

31. (Cancelled).

32. (Previously presented) The method of claim 27 comprising the step of controlling temperature of the sample.

33. (Previously presented) The method of claim 27 comprising the step of controlling pressure to which the sample is exposed.

34. (Cancelled).

35. (Original) The method of claim 27 wherein the sonic energy is focused on the sample.

36-38. (Cancelled)

39. (Previously presented) The method of claim 27 wherein during the controlling step, the intensity of the sonic energy is controlled.

40-42. (Cancelled)

43. (Previously presented) The method of claim 27 wherein the sonic energy comprises at least two different frequencies.

44. (Cancelled)

45. (Original) The method of claim 27 wherein the wavetrain comprises a first wave and a different second wave.

46. (Original) The method of claim 27 wherein the wavetrain comprises about 1000 cycles per burst at about a 10% duty cycle at about 15 MPa.

47. (Original) The apparatus of claim 18 wherein the sensor monitors a mechanical occurrence.

48. (New) The apparatus of claim 1 wherein the processor comprises a device for moving the sample from a first location to a second location.

49. (New) The apparatus of claim 1 wherein the focal zone has an axial length of less than about 6 cm.

50. (New) The apparatus of claim 1 wherein the wavetrain converges in a focal zone having a diameter of less than about 1 cm.

51. (New) The apparatus of claim 50 wherein the focal zone has a diameter of about 3 mm and an axial length of about 15 mm.

52. (New) The apparatus of claim 50 wherein the focal zone has a diameter of about 2 mm and an axial length of about 6 mm.

53. (New) The apparatus of claim 50 wherein the wavetrain converges in a focal zone having a diameter of less than about 1 mm.

54. (New) The method of claim 27 wherein the focal zone has an axial length of less than about 6 cm.

55. (New) The method of claim 27 wherein the wavetrain converges in a focal zone having a diameter of less than about 1 cm.

56. (New) The method of claim 55 wherein the focal zone has a diameter of about 3 mm and an axial length of about 15 mm.

57. (New) The method of claim 55 wherein the focal zone has a diameter of about 2 mm and an axial length of about 6 mm.

58. (New) The method of claim 55 wherein the wavetrain converges in a focal zone having a diameter of less than about 1 mm.